

Tech in the Suburbs

March 14, 2018

Mary Wussow, Branch Manager
Dakota County Library - Wescott

Goals of Class

To share ideas of science & technology programs for all ages & to inspire library staff to branch out

To suggest programs, services & equipment/software for a variety of price ranges

To encourage library staff to dream small or big and to think outside the box

To suggest reaching out to potential community partners for sources of expertise, funding and teachers or volunteers

Areas covered

Programs

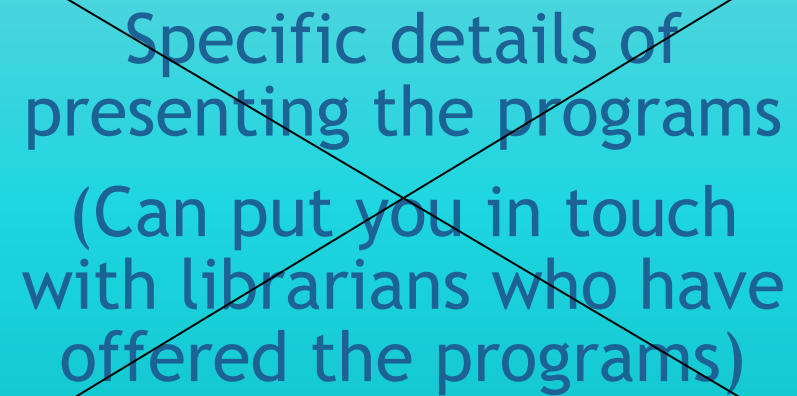
Equipment,
Software &
Kits

Funding &
Community
Support

Not included



Technical 'how-to' steps



Specific details of
presenting the programs
(Can put you in touch
with librarians who have
offered the programs)

Programs

Big Truck Day (Truck 'Petting Zoo')



City & County
Trucks:

Fire Truck

Police Car

Snowplow &
other
maintenance
vehicles

Homeschool Science/STEAM on Saturdays (Youth)

Average cost: \$250.
Some free. Some
higher priced.

Less expensive
alternatives:

Look at local
community or 4-year
colleges to see if they
have someone to do
the program for free

Check with any local
high-tech company to
see if they have an
expert who might do a
program



Find hands-on STEM
activities on the
Internet and librarians
teach programs and/or
show videos

Homeschool Science/STEAM on Saturdays (Youth)

Homeschool Science programs offered once monthly on a weekday during the school year. STEAM on Saturdays is often a repeat of Homeschool Science but offered Saturday once monthly on a Saturday afternoon.

Presenters:

- Raptor Center
- Minnesota Zoo
- Science Museum of Minnesota
- Rad Zoo
- Bakken Museum
- Bell Museum
- KARE 11 Weather
- Meteorologist/author Mike Lynch
- Mad Science
- 3M Visiting Wizards
- Leonardo's Basement
- The Works
- Rich Valley Radio Controlled Airplane Flying Club
- Dakota County Parks
- Warner Nature Center
- STEAM Bunnies
- University of Minnesota

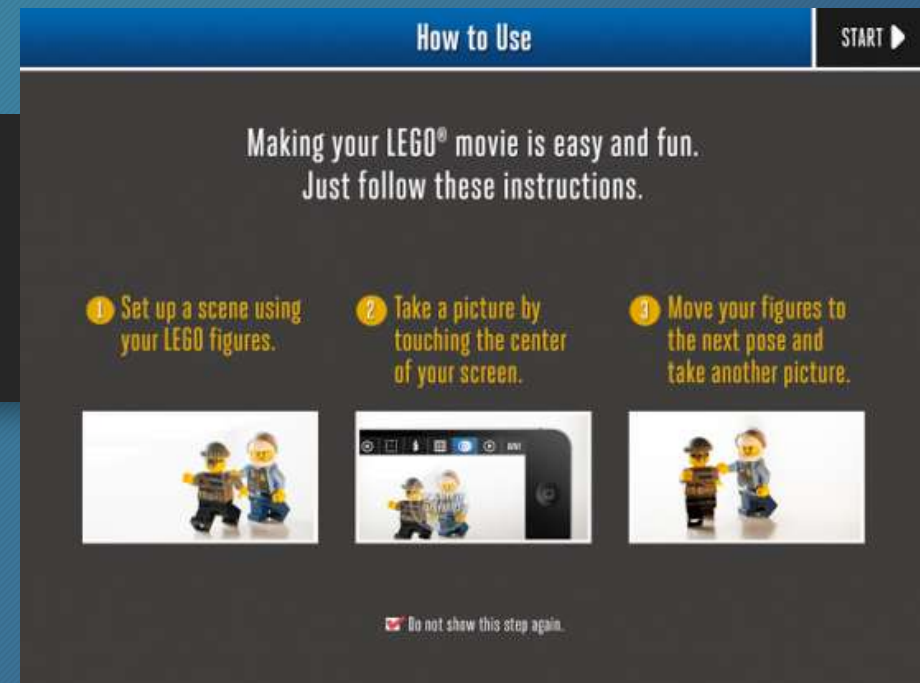
Homeschool Science/STEAM on Saturdays (Youth)

Topics:

- Raptors
- Motion
- Magic Chemistry Show
- Animals of the North
- Kitchen Grossology
- Zoomobile
- Static Electricity
- Honeybee Project
- Engineering Careers
- Yo-Yos
- Bugs
- Minnesota Meteorology
- Moon Rocks & Meteorites
- Migration
- Fish Dissection
- Forensics
- Physics
- Nano Particles
- Cockroaches & Tarantulas
- Cryogenics
- Heart
- Air Power
- Currents
- Creating with Junk
- Invertebrates
- Fire & Ice
- Astronomy/Star Watching
- Air & Vacuum
- Acids & Bases
- Wind Turbines
- NASA's Pictures
- Water Conservation
- Frogs, Volts & Vinegar
- Amazing & Unusual Animals
- Minnesota Monarchs
- Honeybees
- Circuits
- Dinosaurs
- Model Aviation
- Minnesota Geology
- Energy
- Eclipses

Movie Making (Youth)

Kids, tweens or teens work as a group or in pairs to create their own movies. Upload to cloud service.



LEGO Movie App with iPads
OgoBild/Animate It software
iMovie/Green Screen
(general class & book trailers) for Macs

Coding & Pre-Coding (Youth)

Scratch/ScratchJr
(free)

Hour of Code (free)

- Anna & Elsa
- Minecraft
- Star Wars
- Many more!

Mindstorms



Ozobots or Sphero



Bee-Bots for pre-coding and Pro-Bots

Use library computers
or have students
bring their own PCs,
smartphones or
tablets.

Electronics (Youth)



Makey Makey

Snap Circuits

Robotics (Youth)

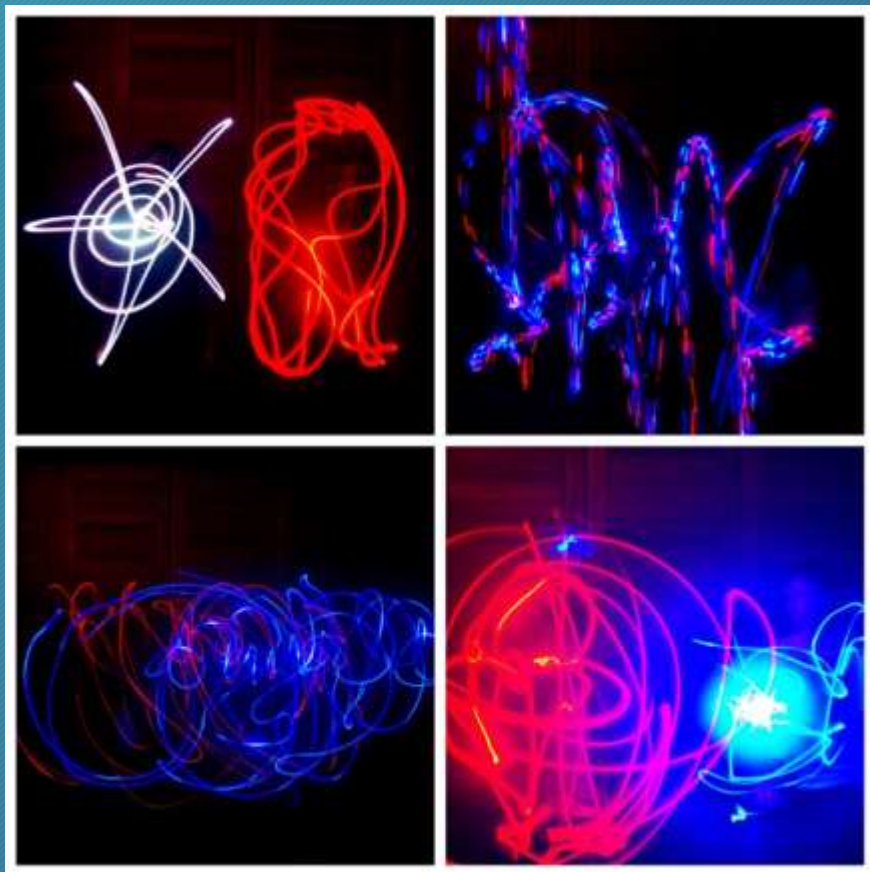
Intro to Robotics
Programming
(High School
Robotics Team)



Robotics Demos
(High School
Robotics Team)

Free programs!

Light Painting (Youth or Adults)



Light Painting (Youth or Adults)

"Paint with Light"
(Maker Camp)

"How to Do Light
Painting"

"Light Painting 101"
(instructables)



< YouTube & Vimeo Movies (search *light painting* or a light painting artist from Finland: *Hannu Huhtamo*)

Free A.R. light painting app for iPad >



Virtual Reality (Youth)



Virtual Reality creates a new virtual world. Usually a headset, goggles or glasses are used to view the world.

DCL purchased Viewmaster Deluxe headsets (early 2017 cost: $\$32.99 \times 10 = \329.90) and one iPod Touch (\$199) for those who don't have their own device.

Programs:

- Explore Virtual Reality
- Space Travel in VR
- Build a Virtual Reality World
- Virtual Reality Games
- Photos in Virtual Reality

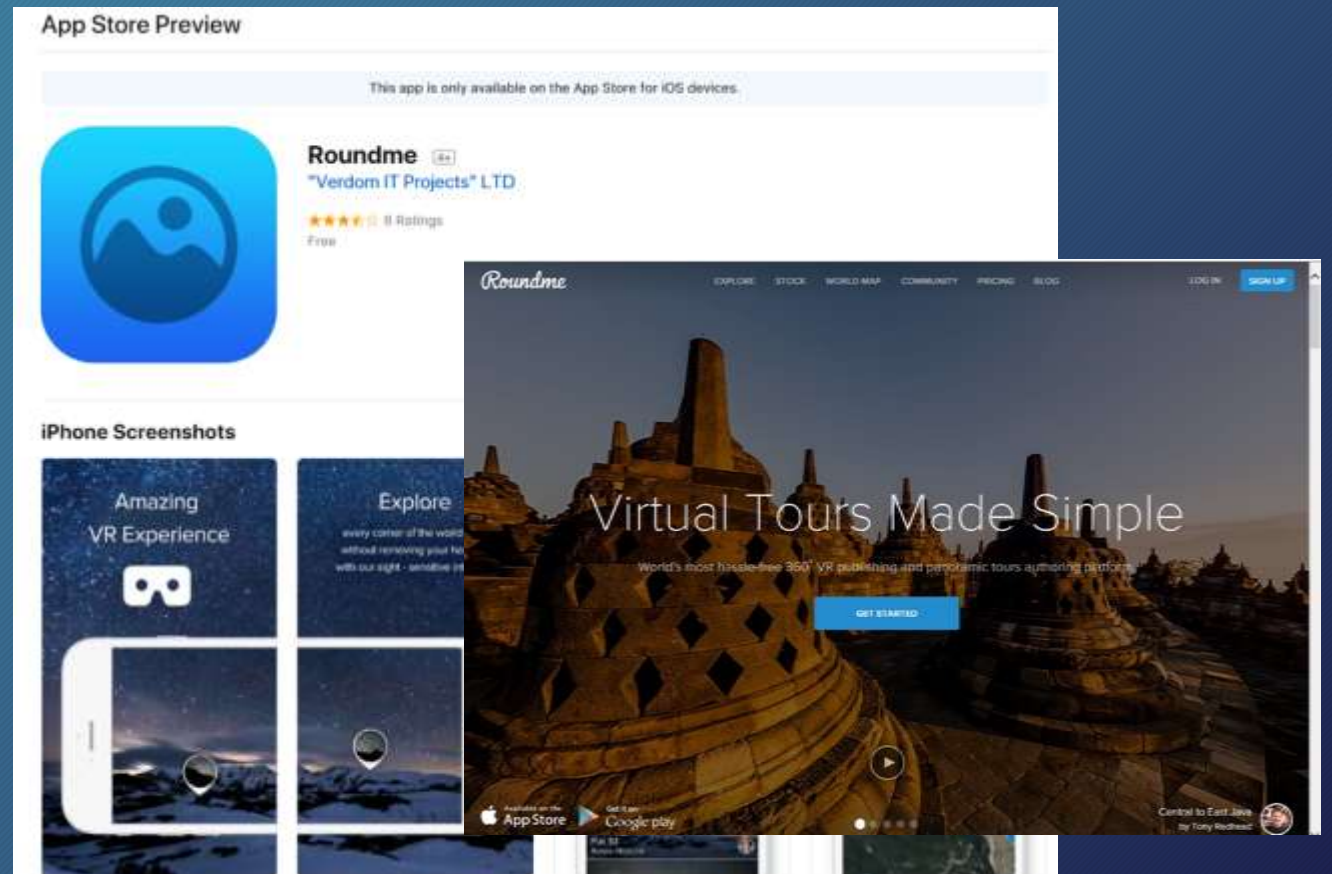
VR Kit for Checkout

Library VR/Panoramic Tour/Video

Take 360
panoramic
photo tours

Upload tours
onto Roundme
website

View video tour
of library in
Roundme app or
share access



Augmented Reality (Youth)

Augmented Reality inserts a digital world into the existing, real world. A smartphone, tablet or laptop can be used.

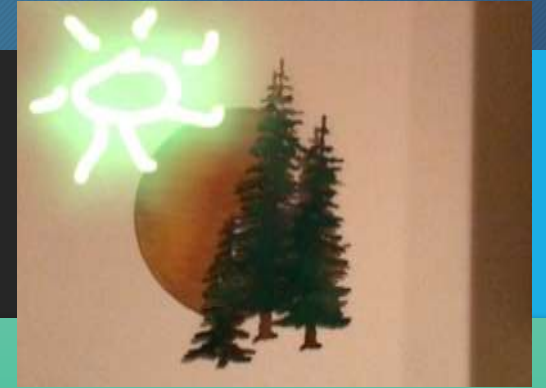
For instance, a company might offer an A.R. app that can insert furniture into your home for you to consider how it would look.

Instructions for putting together a bookshelf might light up the pieces you need to put together next.

You might 'try on' clothing and decide on your order without physically doing so. Or, change hairstyles or makeup.



Look for free or low-cost A.R. apps for kids or tweens involving dinosaurs, movies, dogs & cats, fairies, space, sports & more.



Project Runway (Youth)

TV's "Project Runway" designer Christopher Straub acted as a mentor to youth designers who took cast-off clothing and designed a new creation with sewing machines brought in. He spoke patiently with each child or teen and emphasized what he liked about their design.

Programs:

- Holiday Sewing with Christopher Straub
- Bags by Christopher Straub
- Teen Fashion Sew-It-Up & Review with Project Runway's Christopher Straub

Lower-cost Alternatives: Find sewers or designers locally from the community, school system or fabric store to work with kids. Ask for old clothing donations from staff.

Example of tween/teen program with library staff and volunteers:
Sewing Style Battle



T-Shirt Quilt (Youth & Adults)

“A day-long workshop with the Dakota County Star Quilters and librarians, making a t-shirt quilt out of treasured t-shirts. Work alone or team up with a member of another generation.”

Sewing machines (2) from the library's iLAB and other machines were brought in by class participants.

Cost: A supply list was provided to participants and they purchased their own supplies.

Other sewing program:

Simple DIY Throw Pillow

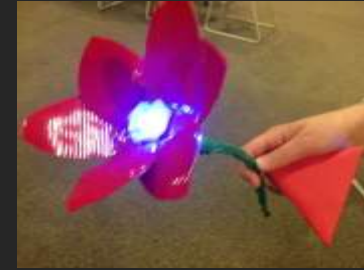


Viking Braiding Meets 3D Printing/Lucet (Adults)

3D print a lucet ahead of time and bring it to class to learn how to do Viking braiding



STEAM Fests & Tech Toys (Youth)



Purchased robotics, electronics and tech toys in small quantities.

STEAM Fests: drop-in sessions over 2 hours for kids and families to stop at tables and try different activities using technology or arts/crafts.

Tables are run by librarians, circulation staff and Volunteers.



Examples: Ozobots, Sphero, Snap Circuits, iPad art apps, art projects (supplies & instructions provided), button making, LED throwies



Family Engineering Nights (Youth & Adult)

More structured
than STEAM Fests

Family teams
working on assigned
challenges to invent
a product or
solution

Drop-in stations on
engineering as a
career or tasks to
complete



Look at STEM
curriculum sites for
ideas.

NASA Moon Rocks (Youth & Adult)



NASA Lunar and
Meteorite Sample Disk
Program

Certification program
attendance required

Special storage
requirements

No prior publicity
without security guard

Special shipping
requirements

Cost: Free except for
above requirements

Auto Maintenance (Youth & Adult)

DCL's program was a teen program offered for free at a local technical college. It's a way for the college to get teens/potential students on campus.

Alternative: Check with local or retired mechanic to offer program or community volunteer with knowledge.



Cost: Free

Alternative: Offer bicycle maintenance.

iPad Lab Classes (Youth & Adult)

iPad Lab with 10
iPads & Instructor
iPad

iPad Basics

iPad
Digital Art

Accessibility
Options on the
iPad

Ebooks on the
iPad

Office
Productivity on
the iPad

Free Apps for
iPads

iPad Storytime

Little Learners
App Discovery

Star Wars iPad
Art



Teen iPad Lab Fun:

- Games Galore
- Digital Art
- Garage Band
- iMovie
- Book Trailers

iLAB Makerspace Classes (Youth & Adult)



Beginning
classes on:

Photo &
Film
Digitization

Paper
Cutting
(Silhouette)

3D Printing

3D Scanning

3D Modeling
(Tinkercad)

Sewing &
Fabric
Cutting

Green
Screen &
iMovie

Audio
Production

Business/Tech Classes (Adult)

Twin Cities creative artist
Becka Rahn:

Etsy: Creating your own Etsy
shop

Spoonflower: Creating your
own digital fabric design

Melding technology & art



Science Museum of
Minnesota

Twin Cities Media
Alliance

Classes on building
websites, creating
Facebook pages for
business, branding a
business, marketing a
business, search engine
optimization and more!

Business/Tech Classes (Adult)

Lower cost alternatives:

Librarians learn topics & teach

Community expert or volunteer teaches

Find 'best of the best' YouTube or Vimeo videos to share

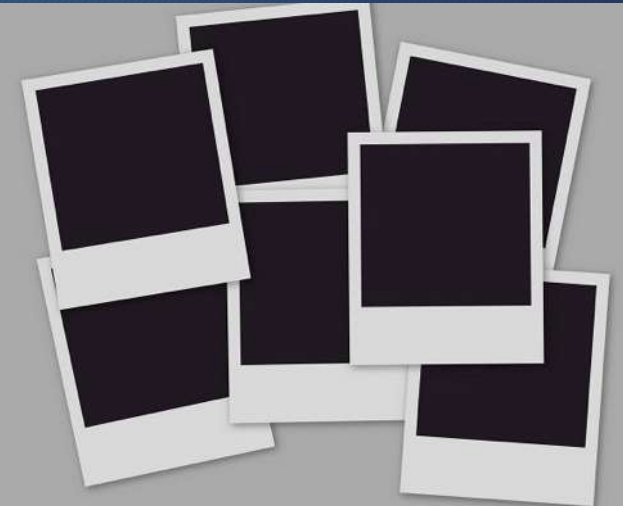


Check with SCORE
(Counselors to America's
Small Business) for free
or low-cost presenter
options.

Preserving Digital Memories (Adult)

Presented by Minitex:

Steps you can take to organize, protect and preserve your irreplaceable family photos, home movies and other digital content against technology obsolescence, physical and natural disasters, and accidental deletion



Preserving Digital Memories (Adult)



Cost: Free

Alternatives:

Librarians learn & teach file organization, saving & conversion

Partner with local historical or genealogical society; ask if they have volunteer to teach

Create Classes out of library databases

Examples:

Ancestry

Learn Together:
Spanish (Mango
Languages)

Lynda.com



Equipment, Software & Kits

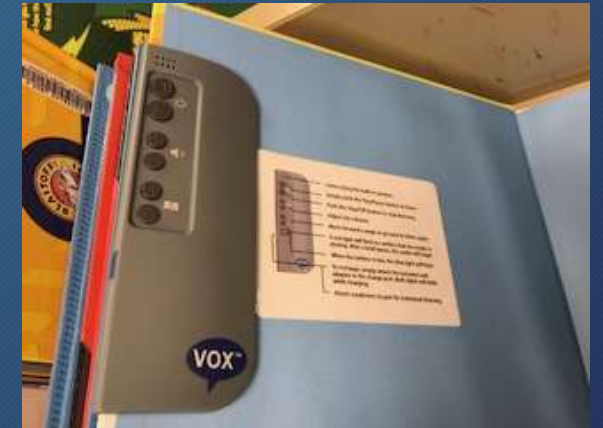
VOX Books

Picture Books and
Juvenile Non-
Fiction: \$38-43

Audio books within
a print book. Push
a button to listen
while reading.

Built-in speaker for
parent & child or
group, plus
headphone jack for
quiet listening.

Charges last 75-100
plays.



AWE Early Learning Computers

All-in-One
touchscreen

70+ software
titles

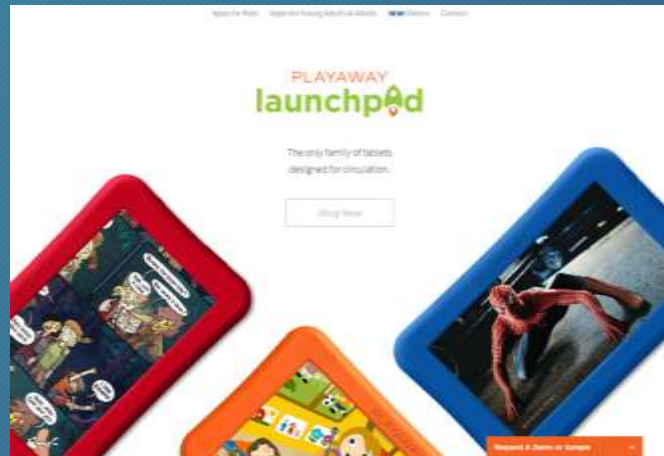
English,
Bilingual Spanish
or French



Launchpads

Tablet preloaded with apps for kids, teens or adults. No WiFi needed (locked down).

Learning apps & games.



Digital Photo Frames



Digital Photo Frames

Digital Photo Frames
(very useful,
inexpensive
promotional tool)

At Service Desk
counters for people
to look at while
approaching the
desk or in line

Can be moved
around to other
display areas

Promotes databases,
new services,
collections,
programs & events

Useful for outreach
events (e.g.,
chamber of
commerce, 55+
fairs)

Advertises Friends
of the Library, who
purchased the
frames for us

Storytime welcome
sign with early
literacy info

Cost: \$200 each
(2014). Cost lower
today but depends
on size & features.

Digital Signage (Large, Wall-Mounted)

Digital Signage (larger)

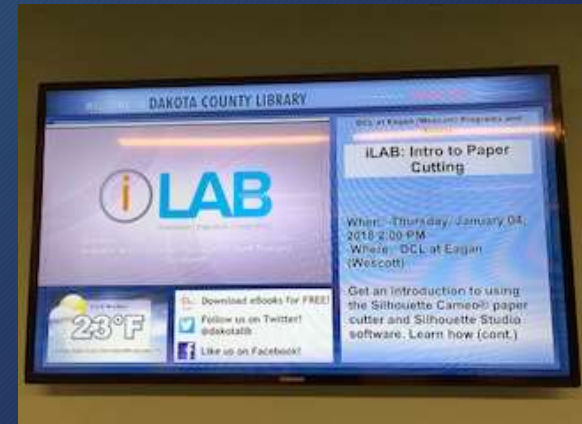
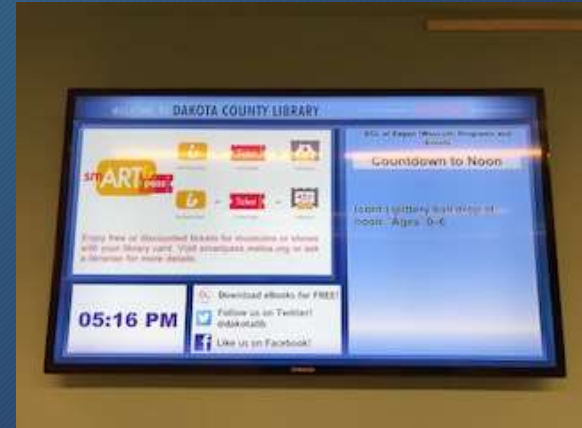
Used to push out system-wide messages

Eye-catching

Can be customized for time/temperature as well as library information

Cost: \$1000s but varies with hardware/software/installation options

Lower cost alternative: Smaller digital photo frames (under \$100)



Reader Bar

Used 2012-2017

Back counter of the
Service Desk

Samples of iPad,
Android, Kindle & Nook
tablets (or for less
expensive, two of the
most popular)

Used for promotion of
ebooks/downloadables
as well as demos to
the public on how
ebooks/downloadables
work



iLAB/Makerspace

Designated rooms for
the iLAB:

Audio & Video
Production Area

3D Printing & Scanning,
Sewing & Fabric Cutting,
Film & Slide Conversion,
Videocassette
Conversion, Paper
Cutting



iLAB/Makerspace

Equipment & Costs:

Ultimaker 2+
3D printers (2)
\$2500 each

NextEngine 3D
Scanner (1) \$3000

Janome
Schoolmate
Sewing Machines
(2) \$650 each

Accuquilt GO! Big
Electric Fabric
Cutter (1) \$500
• Accuquilt Dies \$500

Silhouette Cameo
2 paper cutter (1)
\$300



iLAB/Makerspace



Equipment & Costs (continued):

Epson Photo,
Slide & Negative
Converter (1)
\$200

Wolverine Photo,
Slide & Negative
Converter (1)
\$60

Mac Pro Quad-
Core (2) \$2800
each + monitors
(2) \$400 each

iMac 27" (1)
\$2000

Green screen
package \$155

GoPro HERO4
camera (1) \$400

iLAB/Makerspace



Equipment &
Costs
(continued):

Guitar Amp
Interface \$200

MIDI Controller
\$170

Mic bundle
\$220

Intuos Creative
Drawing Tablet
(1) \$350

Software
\$4400

Tables \$2200

iLAB/Makerspace



WhisperRoom Sound
Booth \$14,000

Misc. expenses



TOTAL iLAB
Makerspace:
\$40,000

Ongoing costs: 3D
printer filament
(\$30/spool); paper &
fabric cutting mats



iLAB/Makerspace



Less expensive alternatives:

Purchase one piece of equipment each year to fit in the main library or an out-of-the-way nook

Seek funding from local craft/hobbyist groups or service organizations

Ask a local store selling sewing machines if they'd donate the next model that they discontinue selling

Check into local Target or Walmart grants

Crowd Funding Sites

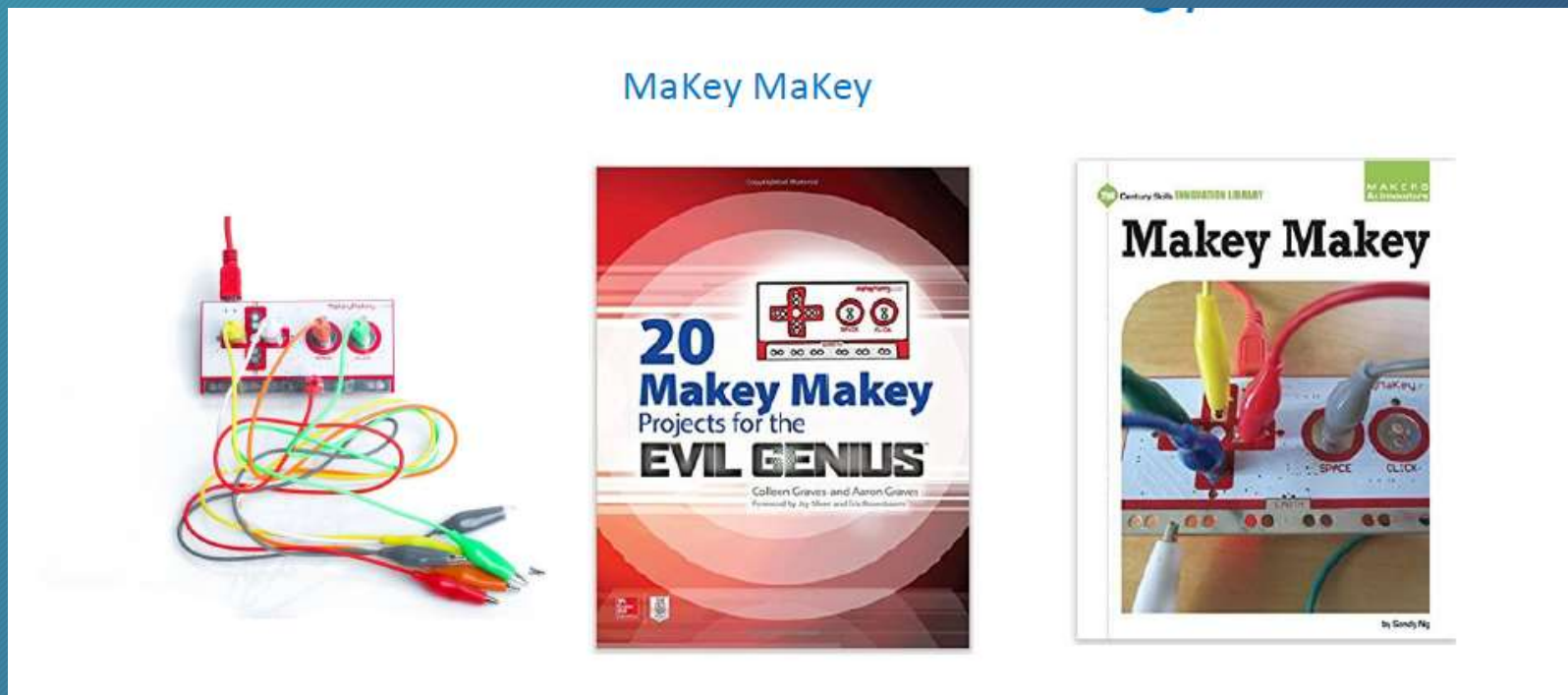
iLAB 2Go! Kits



Cost: Under \$2000 for 28 kits (14 unique titles, 2 copies of each).

Cost includes tote bins, books and non-traditional items.

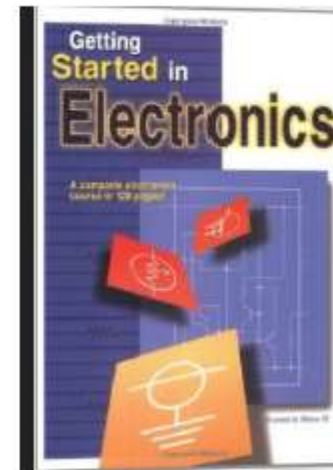
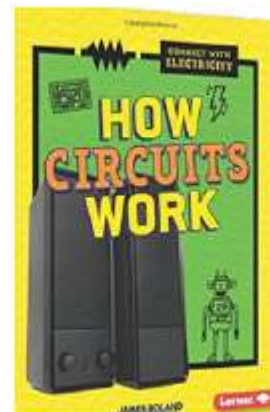
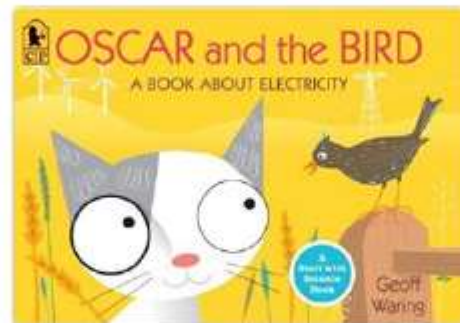
iLAB 2Go! Kits



MaKey MaKey Kit

iLAB 2Go! Kits

Snap Circuits Jr



Snap Circuits Kit

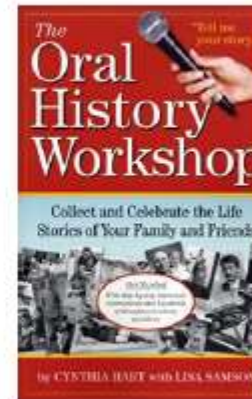
iLAB 2Go! Kits



Virtual Reality Kit

iLAB 2Go! Kits

Portable Audio Recorder



Oral History Interview Kit

iLAB 2Go! Kits

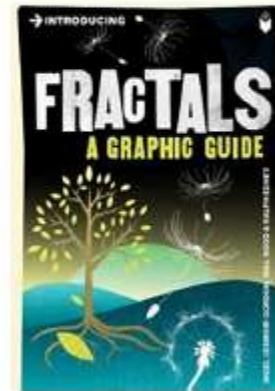
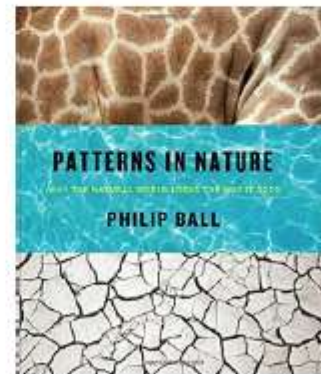
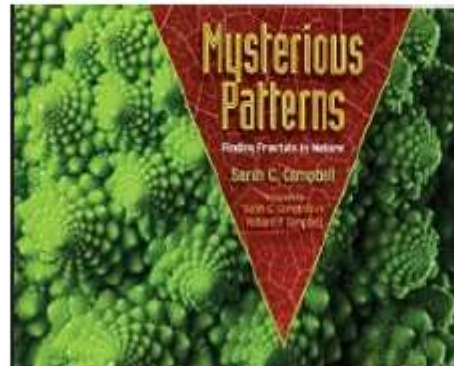
Spirograph



Spirograph Kit

iLAB 2Go! Kits

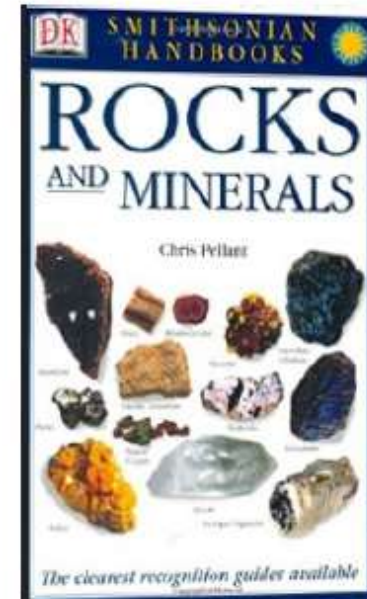
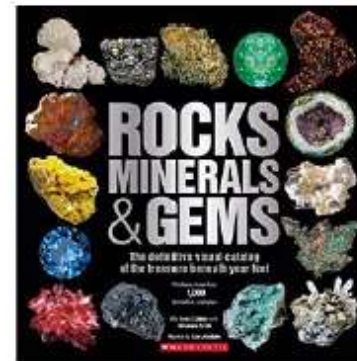
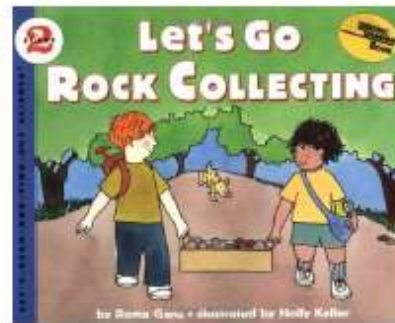
Fractals



Fractal Patterns Kit

iLAB 2Go! Kits

Rocks & Minerals



Rocks & Minerals Kit

iLAB 2Go! Kits

Fashion Drawing & Design



Fashion Design & Drawing Kit

iLAB 2Go! Kits

Superhero & Comic Design



Comic Design & Drawing Kit

iLAB 2Go! Kits

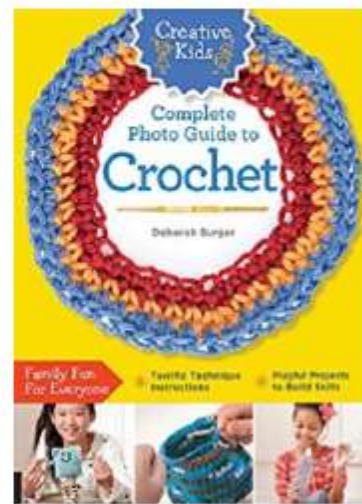
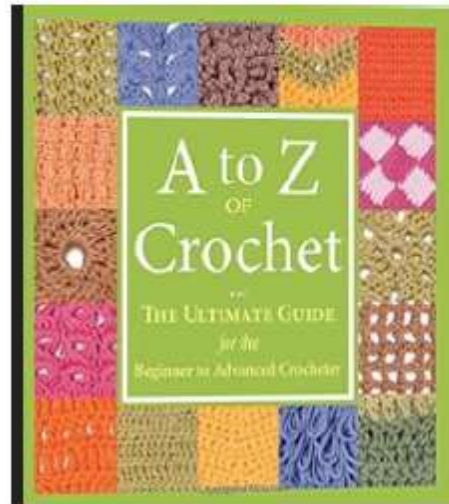
Design Studio Pro



Design Studio Pro Kit

iLAB 2Go! Kits

Crochet



Crochet Kit

iLAB 2Go! Kits



Knitting



Knitting Kit

iLAB 2Go! Kits

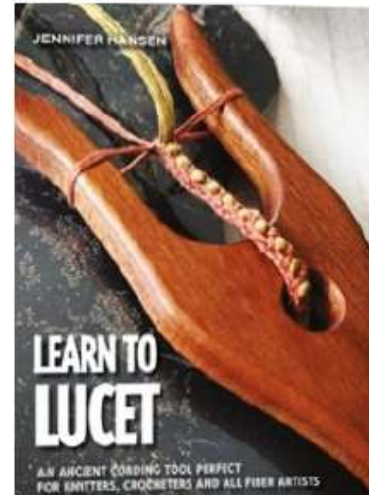
Circular Loom Knitting



Circular Loom Knitting Kit

iLAB 2Go! Kits

Lucet Braiding



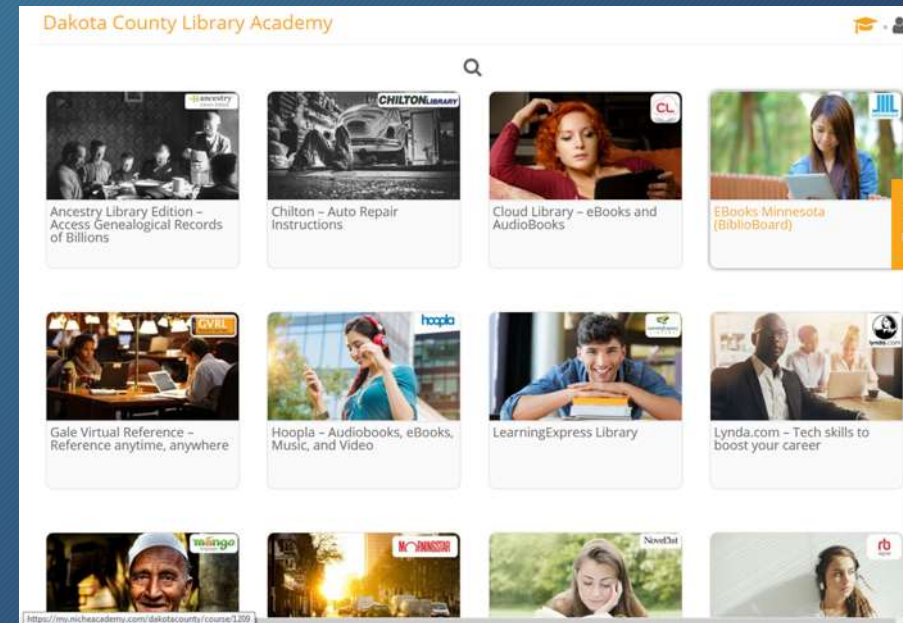
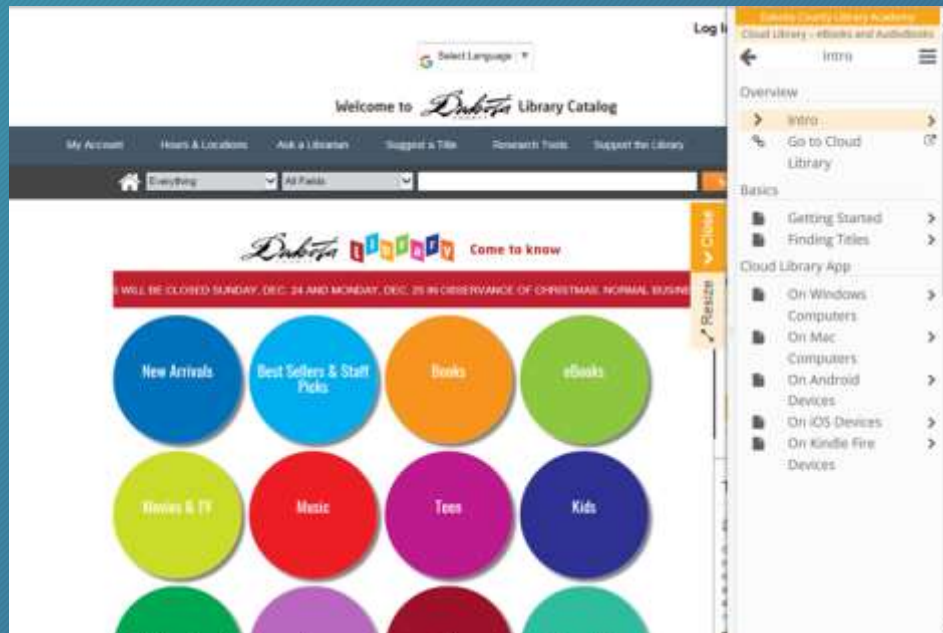
Lucet Kit (Lucet was 3D Printed on the Library's 3D Printer)

Niche Academy - Side Slider or Full Academy Widgets

Tutorials for the public and/or staff

Videos or printed materials

Materials can be locally created or matched with Niche Academy's videos



Funding & Community Support

Funding possibilities

Grants
(STEM/STEAM/
science)

Local big box or
tech company
employee &
matching grants

Demco Grants
Search (by STEM
or Technology)

Chamber of
Commerce

Friends of the
Library

Booksale

Foundations

Regional library
cooperatives

Service
organizations



Crowd Funding
Sites

Give to the Max
Day (Minnesota)

Schools/School-Related Groups & Colleges



Expertise in tech areas
(e.g., Robotics, Media
Production, Coding)

Programs: Attendance,
Assistance, Space for
Alternative Programs
(e.g., auto
maintenance)

Volunteers

Artists & Crafters

Programs (e.g.,
quilters, knitters or
other fiber arts
experts or high-tech
artists)

Expertise in
developing
makerspace or kits

Volunteers to help
teach, tutor or be a
resource at a
program table



Chamber of Commerce



Funding

Promotion through
company networks

Expertise in tech
areas

Equipment/supplies

Volunteers/teachers

City or County Departments

Funding

Community
contacts

Media resources
& support:
Equipment,
Community TV

Low-tech
Programs (e.g.,
Parks/Survival
Programs)



Community Service Organizations



Funding

Community
contacts

Volunteers

Programs

Local Utility Companies

Energy Usage
& Information
Kiosks

Energy
Monitor Kits

Programs



Retired/55+ Groups, Senior Centers or Senior Living Facilities



Expertise/skills
for programs

Volunteers

Fundraisers

Community
contacts

Space for
Programs

High-Tech Companies

Funding:
Gifts &
Grants

Programs in
their area
of expertise

Equipment



Friends of the Library

Funding

Grant
holder as
501(c)(3)

Community
contacts

Support



Friends of the Wescott Library
Learning Together



Library Boards or Library Advisory Groups



Support
(financial or
other)

Community
contacts

Volunteers/Volunteers

Assistance with
programs

Expertise
(sewing,
building,
electronics, etc.)

Promotion



Go forth and create!



Contact

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Dakota County Library - Wescott
Eagan MN 55123
651-450-2911
Mary.Wussow @ co.dakota.mn.us